

DRAFT ASSESSMENT OF BENEFITS, COSTS AND IMPACTS
UNIVERSE OF ALTERNATIVES
2020 Peninsula Gateway Corridor Study

HIGHWAY 101

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|--|---------------------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| A | Route 101 Auxiliary Lanes | MV, PA | See "Comparison" Chart | | | | | | |
| B | Reconstruct Embarcadero/Oregon Interchange | MV, PA | ⊙ | ⊙ | \$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| C | Reconstruct San Antonio interchange and eliminate southbound on ramp at Charleston | MV, PA | ● | — | \$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| D1 | Widen freeway to 10 lanes (County Line to Shoreline) | MV, PA | ● | — | \$\$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| D2 | Widen freeway to 10 lanes + Aux Lanes (County Line to Shoreline) | MV, PA | ● | — | \$\$\$\$\$ | ○ | ⊙ | ○ | ○ |
| E | Widen freeway to 10 lanes + Aux Lanes (Whipple to County Line) | RC, MP, EPA, PA | ● | — | \$\$\$\$\$ | ○ | ⊙ | ○ | ○ |
| F | Route 101 Elevated Express Lanes | MV, PA, EPA, MP, RC | See "Comparison" Chart | | | | | | |
| G | Improve local ability to cross 101 | MV, PA, EPA, MP, RC | — | — | \$\$ | — | — | ⊙ | ⊙ |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
| | ASSESSMENT KEY: | | | | |
| | | ● | IMPROVEMENT | | LESS-THAN-SIGNIFICANT |
| | | ⊙ | SMALL IMPROVEMENT | | LESS-THAN-SIGNIFICANT (w/ MITIGATION) |
| | | ○ | DEGRADE | | SIGNIFICANT |
| | | — | NO CHANGE | | NONE |

| Location Key: | |
|---------------|----------------|
| EPA | East Palo Alto |
| MP | Menlo Park |
| MV | Mountain View |
| PA | Palo Alto |
| RC | Redwood City |

| Construction Cost Key | |
|-----------------------|---------------|
| \$\$\$\$\$ | >\$500M |
| \$\$\$\$ | \$200M-\$500M |
| \$\$\$ | \$50M-\$200M |
| \$\$ | \$1M-\$50M |
| \$ | <\$1M |

DRAFT ASSESSMENT OF BENEFITS, COSTS AND IMPACTS
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2020 Peninsula Gateway Corridor Study

CONNECTING BRIDGE AND HIGHWAY 101

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|---|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| | | | | | | | | | |
| H | Grade Separations on Bayfront Expressway | EPA, MP | See "Comparison" Chart | | | | | | |
| I | Extend Bayfront Expressway to Woodside Road | MP, RC | ● | ⊙ | \$\$\$ | ⊙ | ⊙ | ⊙ | ○ |
| J | Construct direct flyover connection between Bayfront/ Marsh and 101 north of Marsh | MP, RC | ⊙ | ⊙ | \$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| K | Elevated Direct Connections between Bayfront and 101 along Willow Road Corridor * See improvement CC | EPA, MP | ● | ⊙ | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| L | Elevated roadway along Dumbarton RR corridor between University and 101 | EPA, MP | ● | ⊙ | \$\$\$\$ | ○ | ⊙ | ○ | ⊙ |
| M | New 101 South connection through East Palo Alto (Expressway south of University) | EPA, MP | ● | ● | \$\$\$\$\$ | ○ | ○ | ○ | ○ |
| N | New 101 South connection skirting East Palo Alto (Expressway/viaduct along edge of bay) | EPA, PA | ● | ● | \$\$\$\$\$ | ○ | ⊙ | ○ | ○ |
| O | Tunnel beneath East Palo Alto | EPA | ● | ● | \$\$\$\$\$ | ● | ● | ● | ⊙ |
| P | San Francisquito Creek Diversion Structure and Roadway (dual use tunnel facility) | EPA, PA | ⊙ | ⊙ | \$\$\$\$ | ⊙ | ⊙ | ○ | ⊙ |
| P1 | Route 101 flood control project potentially down Willow Road. | EPA, MP | — | — | \$\$\$\$ | ⊙ | ⊙ | ○ | ⊙ |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
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| | | ● | IMPROVEMENT | | LESS-THAN-SIGNIFICANT |
| | | ⊙ | SMALL IMPROVEMENT | | LESS-THAN-SIGNIFICANT (w/ MITIGATION) |
| | | ○ | DEGRADE | | SIGNIFICANT |
| | | — | NO CHANGE | | NONE |

| | |
|---------------|----------------|
| Location Key: | |
| EPA | East Palo Alto |
| MP | Menlo Park |
| MV | Mountain View |
| PA | Palo Alto |
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| | |
|-----------------------|---------------|
| Construction Cost Key | |
| \$\$\$\$\$ | >\$500M |
| \$\$\$\$ | \$200M-\$500M |
| \$\$\$ | \$50M-\$200M |
| \$\$ | \$1M-\$50M |
| \$ | <\$1M |

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WILLOW ROAD

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|---|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| Q | Short-term operational improvements on Willow Road | EPA, MP | See "Comparison" Chart | | | | | | |
| R | Prohibit left turns during peak travel periods | EPA, MP | ⊙ | ⊙ | \$ | - | - | ⊙ | - |
| S | Prohibit local cross traffic during peak travel periods | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | - |
| T | Exit/Entrance Right Turn pockets on Willow | EPA, MP | ⊙ | ⊙ | \$ | - | - | - | ⊙ |
| U | Set back curb line one lane width from traveled way at driveways | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | ○ |
| V | Eliminate driveway access on Willow | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | - |
| W | Eliminate selected signalized intersections: <ul style="list-style-type: none">· Newbridge St· Ivy Dr· Hamilton Ave | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | - |
| X | Eliminate signalized intersections and allow right turns only on/off Willow | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | - |
| Y | Eliminate signalized intersections and prohibit any access from local streets | EPA, MP | ⊙ | ⊙ | \$ | - | - | ○ | - |
| Z | Widen Willow one lane each direction | EPA, MP | ● | ● | \$\$\$ | ○ | ⊙ | ○ | ○ |
| AA | Grade separations at selected intersections: <ul style="list-style-type: none">· Newbridge St· Ivy Dr· Hamilton Ave | EPA, MP | ● | ● | \$\$\$\$ | ○ | ⊙ | ○ | ○ |
| BB | Pedestrian over crossing at Ivy Dr (near Mid-Peninsula High School) | EPA, MP | - | - | \$ | ○ | - | - | ⊙ |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
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| | | ● | IMPROVEMENT | | LESS-THAN-SIGNIFICANT |
| | | ⊙ | SMALL IMPROVEMENT | | LESS-THAN-SIGNIFICANT (w/ MITIGATION) |
| | | ○ | DEGRADE | | SIGNIFICANT |
| | | - | NO CHANGE | | NONE |

| Location Key: | |
|---------------|----------------|
| EPA | East Palo Alto |
| MP | Menlo Park |
| MV | Mountain View |
| PA | Palo Alto |
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| Construction Cost Key | |
|-----------------------|---------------|
| \$\$\$\$ | >\$500M |
| \$\$\$\$ | \$200M-\$500M |
| \$\$\$ | \$50M-\$200M |
| \$ | \$1M-\$50M |
| \$ | <\$1M |

DRAFT ASSESSMENT OF BENEFITS, COSTS AND IMPACTS
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2020 Peninsula Gateway Corridor Study

WILLOW ROAD (CONT'D)

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|----------------|--|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| CC1 | Elevated viaduct expressway structure • 2 lanes in each direction | EPA, MP | ● | ⊙ | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| CC2 (Alt 6) | Elevated viaduct expressway structure • 1 lane in each direction | EPA, MP | See "Comparison" Chart | | | | | | |
| CC3 | Elevated viaduct expressway structure • Reversible 2 lanes | EPA, MP | ● | ⊙ | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| CC4 | Elevated viaduct expressway structure • 3 lanes with reversible middle lane | EPA, MP | ● | ⊙ | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| DD1 | Depressed expressway • 2 lanes in each direction | EPA, MP | ● | ⊙ | \$\$\$\$ | ⊙ | ⊙ | ⊙ | ○ |
| DD2 | Depressed expressway • 1 lane in each direction | EPA, MP | ● | ⊙ | \$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| DD3 | Depressed expressway • Reversible 2 lanes | EPA, MP | ● | ⊙ | \$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| DD4 | Depressed expressway • 3 lanes with reversible middle lane | EPA, MP | ● | ⊙ | \$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| EE | Grade separations at all intersections (over crossings or under crossings) | EPA, MP | ● | ● | \$\$\$\$\$ | ○ | ⊙ | ○ | ○ |
| FF | Tunnel Expressway (maintaining existing facility at grade) | EPA, MP | ● | ● | \$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| GG | Willow Road Depressed/Cantilevered Express Lanes | EPA, MP | See "Comparison" Chart | | | | | | |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
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| | | ⊙ | SMALL IMPROVEMENT | | LESS-THAN-SIGNIFICANT (w/ MITIGATION) |
| | | ○ | DEGRADE | | SIGNIFICANT |
| | | — | NO CHANGE | | NONE |

| Location Key: | |
|---------------|----------------|
| EPA | East Palo Alto |
| MP | Menlo Park |
| MV | Mountain View |
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| Construction Cost Key | |
|-----------------------|---------------|
| \$\$\$\$\$ | >\$500M |
| \$\$\$\$ | \$200M-\$500M |
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UNIVERSITY AVENUE

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|--|----------|--|---|----------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| HH | Short-term operational improvements on University Avenue | EPA | See "Comparison" Chart | | | | | | |
| II | Prohibit left turns during peak travel periods | EPA | ⊙ | ⊙ | \$ | - | - | ⊙ | - |
| JJ | Prohibit local cross traffic during peak travel periods | EPA | ⊙ | ⊙ | \$ | - | - | ○ | - |
| KK | Entrance/Exit Right Turn pockets on University | EPA | ⊙ | ⊙ | \$ | - | - | - | ⊙ |
| LL | Set back curb line one lane width from traveled way at driveways | EPA | ⊙ | ⊙ | \$ | - | - | ○ | ○ |
| MM | Eliminate driveway access on University | EPA | ⊙ | ⊙ | \$ | - | - | ○ | - |
| NN | Eliminate selected signalized intersections: · Bell · Runnymede · Kavanaugh | EPA | ⊙ | ⊙ | \$ | - | - | ○ | - |
| OO | Eliminate signalized intersections and allow right turns only on/off University | EPA | ⊙ | ⊙ | \$ | - | - | ○ | - |
| PP | Eliminate signalized intersections and prohibit any access from local streets | EPA | ⊙ | ⊙ | \$ | - | - | ○ | - |
| QQ | Widen University one lane each direction | EPA | ● | ● | \$\$\$ | ○ | ⊙ | ○ | ○ |
| RR | Grade separations at selected intersections: · Donohoe · Bay | EPA | ● | ● | \$\$\$\$ | ○ | ⊙ | ○ | ○ |

| | | | | | |
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| Location Key: | |
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| MP | Menlo Park |
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UNIVERSITY AVENUE (CONT'D)

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|---|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| SS1 | Elevated expressway/viaduct along University corridor · 2 lanes each direction | EPA | ○ | ● | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| SS2 | Elevated viaduct expressway structure · 1 lane in each direction | EPA | ○ | ● | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| SS3 | Elevated viaduct expressway structure · Reversible 2 lanes | EPA | ○ | ● | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| SS4 | Elevated viaduct expressway structure · 3 lanes with reversible middle lane | EPA | ○ | ● | \$\$\$\$ | ○ | ⊙ | ⊙ | ⊙ |
| TT1 | Depressed expressway · 2 lanes each direction | EPA | ○ | ● | \$\$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| TT2 | Depressed expressway · 1 lane in each direction | EPA | ○ | ● | \$\$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| TT3 | Depressed expressway · Reversible 2 lanes | EPA | ○ | ● | \$\$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| TT4 | Depressed expressway · 3 lanes with reversible middle lane | EPA | ○ | ● | \$\$\$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| UU | Grade separations at all intersections (over crossings or under crossings) | EPA | ● | ● | \$\$\$\$\$ | ○ | ⊙ | ○ | ○ |
| VV | Tunnel Expressway, (maintain existing facility at grade) | EPA | ● | ● | \$\$\$\$\$ | ● | ● | ● | ⊙ |
| WW | University Avenue Depressed/Cantilevered Express Lanes | EPA | See "Comparison" Chart | | | | | | |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
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| | | ○ | DEGRADE | | SIGNIFICANT |
| | | — | NO CHANGE | | NONE |

| Location Key: | |
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| EPA | East Palo Alto |
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| MV | Mountain View |
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| Construction Cost Key | |
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| \$\$\$\$\$ | >\$500M |
| \$\$\$\$ | \$200M-\$500M |
| \$\$\$ | \$50M-\$200M |
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DRAFT ASSESSMENT OF BENEFITS, COSTS AND IMPACTS
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2020 Peninsula Gateway Corridor Study

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|---|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| XX | Install traffic signal interconnect/ communications infrastructure between Middlefield Road and 101 | ALL | ⊙ | ⊙ | \$\$ | - | - | - | - |
| YY | Install transit signal priority to support high- patronage bus routes. | ALL | ⊙ | ⊙ | \$\$ | - | - | - | - |
| ZZ | Install trailblazers and/or arterial CMS to provide route guidance information | ALL | ⊙ | ⊙ | \$\$ | - | - | - | - |
| AAA | Prepare Incident Management and Traveler Information Plan for Corridor | ALL | ⊙ | ⊙ | \$ | - | - | - | - |

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| \$\$\$\$\$ | >\$500M |
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DRAFT ASSESSMENT OF BENEFITS, COSTS AND IMPACTS
UNIVERSE OF ALTERNATIVES
2020 Peninsula Gateway Corridor Study

OTHER

| ID Code | Alternative | Location | Traffic Benefits | | Construction Cost (2006\$) | Potential Impacts | | | |
|---------|--|----------|---|---|-------------------------------|-----------------------|-------|-------------|--------------|
| | | | | | | Visual/ Aesthetics | Noise | Environment | Right-of-Way |
| | | | Change in Roadway Congestion (Expressed in ranges of travel time savings (min)) | Decrease commute traffic on residential streets? (Expressed in ranges of peak period traffic volume) | | | | | |
| BBB | Study the possible designation of East Bayshore (San Antonio to University) as a reliever route to provide congestion relief and for incident management on Route 101 · Improve operations at intersections · Install directional signage to help keep commuters off residential streets | MV, EPA | — | — | \$ | — | — | — | — |
| CCC | Improve 101/University interchange · Construct southbound direct-connect off-ramp · Improve on-off connections for northbound traffic | PA | ⊙ | ⊙ | \$\$\$ | ⊙ | ⊙ | ⊙ | ⊙ |
| DDD | Define residential traffic management elements that complement high priority capital improvements | ALL | — | ● | \$ | — | — | ● | — |
| EEE | Extend Central Expressway to Sand Hill Road | PA | ● | ● | \$\$\$\$\$ | ○ | ○ | ○ | ○ |

| | | | | | |
|--|-----------------|---|-------------------|--|---------------------------------------|
| | ASSESSMENT KEY: | | | | |
| | | ● | IMPROVEMENT | | LESS-THAN-SIGNIFICANT |
| | | ⊙ | SMALL IMPROVEMENT | | LESS-THAN-SIGNIFICANT (w/ MITIGATION) |
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